

# LED BREAKTHROUGH

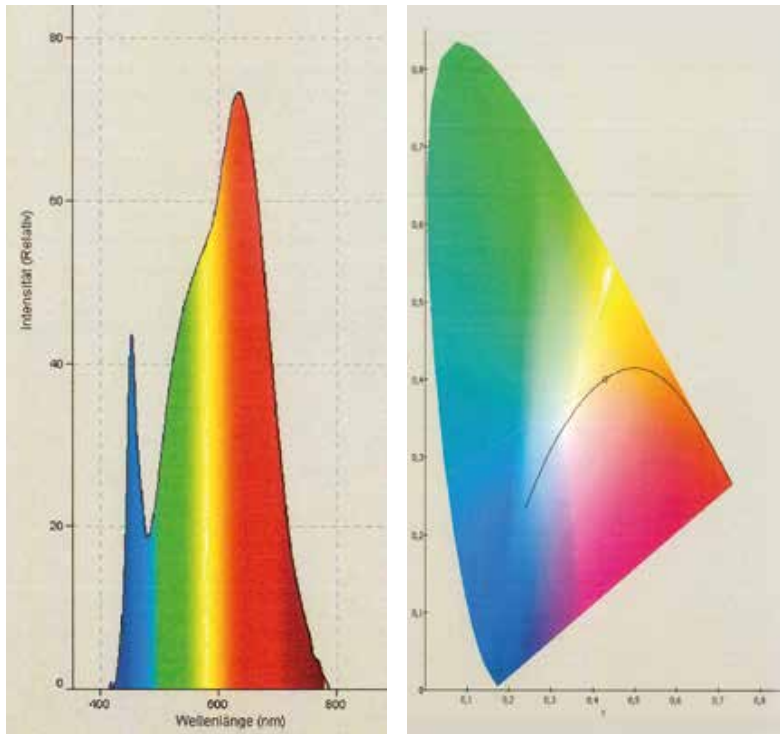
Digital cameras see LED light differently than tungsten/daylight sources meaning they interpret light sources differently. Color temperature meters are unable to see the full spectrum and therefore do not work for the evaluation of LED light.

Samples are only taken in three or four places of the spectrum. Spectrum analysis and CRI values offer a serious step for evaluation, but usually do not include colors such as R9 (red) and R13 (skin tone) - both extremely critical values.

Even expanded CRI evaluations do not offer reliable criteria. TLCI (Television Lighting Consistency Index), the new standard of the European Broadcasting Union (EBU), offers a better and more reliable base for the way studio cameras see LED light.

These studio cameras usually work with three CCD sensors. Thus, the results are not really indicative of the way different CMOS cameras see LED color.

For a number of years we have been conducting tests with various digital cameras and different skin tones. In these tests we light one side of the Face with a reference light and the other with LED light. Our LED lights show a perfect match between reference light and our LED lights as seen by the vast majority of CMOS cameras.



Spectral distribution (left) and color coordinates show that our DLED4 bicolor light (in tungsten function) is perfectly placed on the Planck Curve (right).

CRI Ra (1-8)	97	<b>TLCI 97</b>						
CRI Ra' (1-14)	96							
CCT	3112K							
R1	R2	R3	R4	R5	R6	R7	R8	
98	98	95	97	96	95	98	96	
R9	R10	R11	R12	R13	R14	R15		
89	92	96	95	98	96	89		

Measurements with our 40W DLED4 bicolor light in tungsten function  
Expanded CRI evaluation: 15 colors

## NEW:

### FELLONI3

Vastly improved color, same as previous dedocolor quality

Available as bicolor high output, as daylight high output and as bicolor standard output

### TURBO FELLONI

Only available in high output bicolor version

Light output 5 x higher than previous Felloni panel, also here optimum color quality

Further and more detailed informations are to be found in a separate Felloni brochure including all possible accessories, power options and packaging. In this catalog, Fellonis are to be found in combination kit with other focusing lights. See pages 18 and 19.

Focusing LED lights present special challenges regarding color distribution.

Specially developed LED light sources in combination with our patented double- aspheric technology (recognized by the Oscar committee for Technical Achievement) have allowed us to provide five different dedolight DLED focusing LED light fixtures.

All deliver perfect light distribution, the widest focusing range in the industry and allow the use of our unique line of light shaping accessories. Available in daylight, tungsten and bicolor. Bicolor is variable from 2700K to 6500K

The following DLED focusing lights work with passive cooling (no fan - no noise).  
Ledzilla 8 W, DLED2 20W, DLED4 40W, DLED9 90W

Active cooling is used on DLED12 (2500W) as well as DLED30 (300W).

Also again in super quiet function on the new Turbo light generation, which is described in a separate catalog. DLED3, DLED7, DLED10.

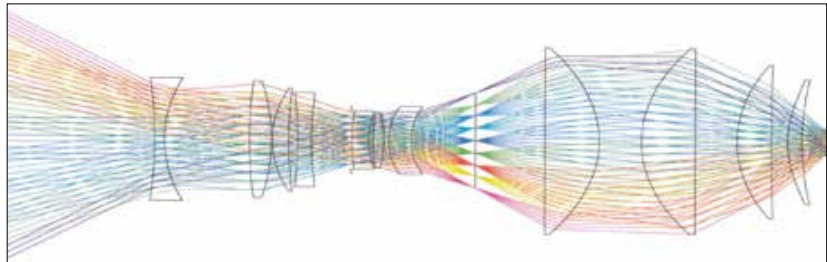
#### Health hazards

In the past, metal halide lamps have been known to cause skin cancer and cataracts due to the short wave-length ultraviolet rays.

We have always offered the lowest and safest UV value in the industry.

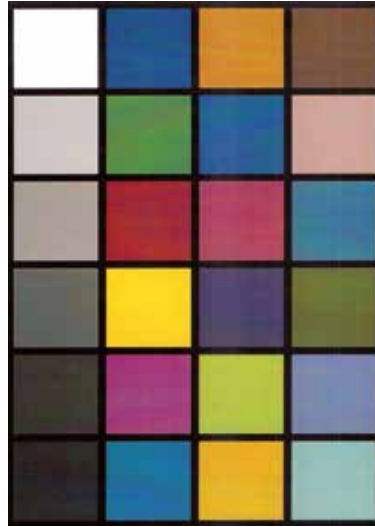
LED light sources can create a health hazard by their unavoidable blue peak.

Our products comply with the requirements of biohazard standard EN6247 in the category of "exempt" (without any health hazard criteria).



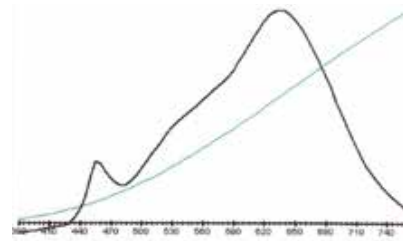
Ray tracing of DLED9 light head with imager / projection attachment and 70mm projection lens f1.5

DLED-BI measured in the lowest tungsten color temperature 2629K. TICI 97



#### Television Lighting Consistency Index – 2012

Sector	Lightness	Chroma	Hue
R	0	0	0
R/Y	0	0	0
Y	0	0	0
Y/G	0	0	0
G	0	0	0
G/C	0	0	0
C	0	0	0
C/B	0	0	-
B	0	-	0
B/M	0	0	+
M	0	+	+
M/R	0	0	0



The spectral curve shows that we have managed to avoid the deep valley next to the blue peak. This offers optimum security regarding photo-biological hazard. The table above also shows that this light does not need any correction in post-production.



<http://www.youtube.com/user/dedoweigertfilm>

- EASY LIGHTING FOR THE SMALL TEAM - tutorial videos
- LEARN LIGHTING FROM THE MASTERS - tutorial videos
- DEDOLIGHT LIGHTING INSTRUMENTS & TOOLS - videos about our unique products
- DEDOLIGHT IN PHOTOGRAPHY - photo shootings and interviews made with dedolight
- INTERVIEWS / BEHIND THE SCENES - learn more about how professionals use our products and a lot more...



Easy lighting for the small team



Learn lighting from the Masters



dedolight: Lighting instruments & tools



dedolight in photography



dedolight: Instructional videos



Q&A - interviews with cinematographers & ...



International dedolight Competition 2015 - Results ...



Behind the scenes



Trade fair interviews & dedolight workshops around the world



Collection of international dedolight videos



Sammlung von deutschsprachigen dedolights ...



Dedo about filmmaking

# LED FACTS AND TOOLS

## FACTS:

Expectations often revolve around magic properties of the LED system.

### No heat!

True, there is very little heat emitted forward from LED fixtures

### BUT

Heat ON the LED light source is enormous. 80% of the energy is transformed into heat. Needs perfect cooling, because at 85°C, color, light output and lifetime are in danger. At 100°C the LED dies. Passive cooling (no fan) involves large cooling surfaces and contributes to weight. Active cooling (with fan) is needed especially for many of the higher wattage LED light sources.

### Lifetime

A lot of information on the Internet suggests a lifetime of 50,000 hours or more. In reality, the lifetime maybe much lower in professional fixtures

### Lumen Maintenance

The continuity of light output depends on the working temperature. In continuous use, the lumen output may be 20% lower after 10,000 hours (LM80).

### Color quality

LED color quality cannot be measured with traditional color meters. It needs spectrum analysis.

Traditional CRI only shows 8 colors. Expanded CRI with 15 colors is more meaningful, but related to the response of the human eye. TLCI (Television Lighting Consistency Index) is an important step for the evaluation of LED light as seen by digital cameras, but refers mostly to studio cameras with 3CCD sensors. CMOS cameras may show many traditional light sources identically, but diverging results with LEDs. At dedolight we have been testing for many years our LED lights and others in most critical tests. Color rendition on human skin. One side of a face is lit with a reference light,

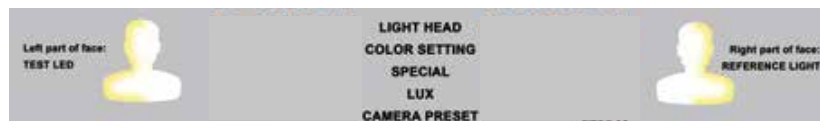
as used in professional work, such as halogen or Kino Flo daylight tubes, compared to the other side of the face which is lit with LED light. We have achieved satisfactory results in these most demanding, critical tests, showing good congruence of skin tones. We see this as a major breakthrough for our lights. At dedolight we strive to find our color coordinates exactly on the Planck curve, and we work on very strict tolerances from this Planck curve ( $\Delta$  UV maximum  $\pm 0.0054$ ). Any such minimal deviations will be measured with each light fixture individually and shown on the label of each light head.

### Color Maintenance

Over many hours of use, dedolight LEDs may show lower color temperature in tungsten by approx. 100 Kelvin, whilst in daylight color the temperature may rise to approx. 200 Kelvin. Both values still stay „on the Planck Curve“. No change in deviation from the Planck Curve ( $\Delta$  UV), no shift towards green or magenta from the original color coordinates. This is a major advantage, since shifts along the Planck Curve are less detrimental to skin tone rendition than green and magenta. We avoid green and magenta adjustment, as this is undesirable for skin tone rendition. Only when shooting in fluorescent light situations with strong green content, we suggest identical filters (1/2 plus green filters on all lights). Correction by white balance or in post-production.

### Advantages of our LED systems

- Best color quality
- Best color matching with traditional light sources
- Low power demand – mobile teams can work with camera batteries. High mobility, no cables.
- Bicolor version adjustable from 2,700K to over 6,000K
- Ability to match most ambient light situations by the turn of a knob.
- Successful transfer of our awarded and patented optical achievements.
- For each LED newly calculated optics



## TOOLS:

### For the biggest studio

Our multi-LED Ledrama panel lights offer highest efficiency. At 20 ft distance (6 meters) over 700 lux with only 220 W power consumption. New optics with over 2000 light sources provide gentle light character. Our Ledrama lights may be accompanied by our focusing DLED12 and DLED9 fixtures.

### Mid-size studios

The Ledrama S 40x40 and our Felloni multi-LED panel lights work beautifully with our focusing DLED4 lights.

### Mobile team

Our Portable Studio concept has been successful worldwide. Now available in LED systems.

### BRAND NEW

Our focusing series of Turbo lights (see sep. brochure). Same size, same small kits and packages, seriously enhanced light output.

### Onboard Lighting

Our Ledzilla light shows highest versatility also in bicolor version and with flip-up wide-angle optics for work at close proximity. Our 20 W focusing DLED2 lights are often used on-camera with and without soft box.

### Light Shaping and Imaging Accessories

An incredible variety and choice of imaging and light-shaping accessories are available for all of our focusing LED lights.

### New Versions

In 2018 we introduced multi-LED panel lights with drastically enhanced output. The Tecpro Felloni Turbo, which offers 5 times the light output over traditional Fellonis.

### Miniature version -

In addition to the large, super power Ledrama lights we now have the miniature Pocket Ledrama, which is absolutely suitable for the smallest teams. Very high light output, similar to previous Fellonis, but can be fed by a single NPF battery and is also capable of wireless operation.

We should also mention the new LED soft lights Ledraptor 3, Ledraptor 5 and Ledraptor 7, which you will find in a separate brochure.